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Cognitive Behavior Therapy for Adult Anxiety Disorders in Routine Clinical Care: A Systematic Review and Meta-Analysis

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Cognitive-behavioral therapy (CBT) has received strong research support for anxiety disorders such as panic disorder, agoraphobia, social anxiety disorder, and generalized anxiety disorder. However, less is known about how CBT performs when delivered in routine clinical care. A systematic review and meta-analysis were conducted of CBT for these anxiety disorders in adults treated in routine clinical care. Ovid MEDLINE, Embase OVID, and PsycINFO were systematically searched for articles published until May 2022. The effectiveness of CBT, methodological quality, and moderators of treatment outcome were examined, and benchmarked by meta-analytically comparing with efficacy studies for the same disorders. Sixty-six studies were included, comprising 6,113 participants. Large within-group effect sizes (ESs; Hedges's *g*) were detected for anxiety measures at posttreatment (1.09) and follow-up (1.39), as well as for the secondary outcome of depression measures (0.80 at both assessment points). Attrition rate across the disorders was 15.9%. The benchmarking analysis showed that effectiveness studies had very similar ES (1.09) as efficacy studies (1.07) at posttreatment and at follow-up (1.39 vs. 1.30), and there were no significant differences in remission rates. Thus, the outcomes of effectiveness studies for these anxiety disorders are comparable with the results obtained in efficacy studies.

Public Health Significance Statement

Cognitive behavior therapy for anxiety disorders in adults treated in routine clinical care was found efficacious in reducing symptoms of anxiety as well as depression, with large within-group effect sizes at posttreatment and at follow-up. An extensive benchmark analysis showed that the outcome of effectiveness studies was no different than that of efficacy studies. Our findings suggest that clinicians and patients can be confident about the effectiveness of cognitive-behavioral therapies with already established efficacy when delivered in routine clinical care. As treatment effects are not lost when evidence-based treatment programs are transported from research clinics to routine clinical care, further implementation of evidence-based interventions is needed in routine clinical care for adults with anxiety disorders.

Keywords: anxiety disorders, effectiveness, cognitive behavior therapy, adults, meta-analysis

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Lars-Göran Öst designed the study, wrote the protocol and the coding schemes, rated the studies, meta-analyzed the included effectiveness and comparison efficacy studies, and wrote the first draft of the manuscript. Gro Janne Wergeland conducted the literature searches in collaboration with an academic librarian and rated the studies for methodological quality and risk of bias. Pia Enebrink, Anna Finnes, Ata Ghaderi, Audun Havnen, Gerd Kvale, and Sigrid Salomonsson screened the studies, read the full-text articles, and extracted data from the included studies. All authors contributed to and have approved the final manuscript.

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Anxiety disorders are common mental disorders, and a few prevalence studies using DSM-5 (American Psychiatric Association, 2013) criteria have been published. Three of these used data from the World Mental Health Surveys covering 25 low-, middle-, and high-income countries across the world with almost 143,000 respondents. de Jonge et al. (2016) investigated panic disorder (PD) and found a lifetime prevalence of 1.7% with a lifetime comorbidity rate of 80.4%. Roest et al. (2019) studied agoraphobia (AGO), finding a lifetime prevalence of 1.5% and an overall comorbidity rate of 88.7%. Finally, Ruscio et al. (2017) investigated generalized anxiety disorder (GAD) and reported a lifetime prevalence of 3.7% with a comorbidity rate of 81.9%.

In addition to the high rates of comorbidity, anxiety disorders are associated with many impairments and functional consequences. According to the DSM-5 (American Psychiatric Association [APA], 2013), anxiety disorders are, for example, associated with high levels of disability, decreased well-being, low workplace productivity, low quality of life, and frequent medical visits. Investigating the global burden of disease in 2010, Baxter et al. (2014) reported that anxiety disorders ranked as the sixth leading cause of disability in both high- and low-income countries.

Various organizations have summarized the evidence-base for different treatments of mental disorders. Perhaps, the most well-known of these is the Society of Clinical Psychology (Division 12) of the APA, which presents empirically supported treatments for various disorders on its website (https://div12.org/psychological-treatments). They find that cognitive-behavioral therapy (CBT) has strong research support for PD with or without AGO (PD ± A), GAD, and social anxiety disorder (SAD). Applied relaxation (AR) has strong support for GAD and modest support for PD, and exposure in vivo has strong support for specific phobias. The Australian Psychological Society (2018) and NICE in the United Kingdom have similar evaluations.

Most of the evidence for evaluation of the research support comes from randomized controlled trials (RCTs) carried out in university settings. These are often characterized by high internal validity, for example, strict inclusion and exclusion criteria, randomization of participants to treatment and control conditions, independent and masked assessors, and well-trained and supervised therapists with focused caseloads and with documented treatment fidelity, following a specific treatment manual. One concern raised regarding the treatments that have strong research support is if they work as well in routine clinical care. Concern about the generalizability of the results arises from the perspective that studies conducted under such ideal research conditions (i.e., efficacy studies) are not representative of routine clinical practice (Hans & Hiller, 2013; Stewart & Chambless, 2009) and that patients, therapists, and treatment context may all differ in important ways between academic centers and routine clinical care. As such, studies in less-controlled, routine clinical care addressing these external validity concerns have been called for (i.e., effectiveness studies) to complement the results from efficacy studies (Hans & Hiller, 2013).

However, there is no clear consensus of what constitutes an effectiveness study (Hans & Hiller, 2013). Effectiveness studies focus on the outcome of psychotherapy when delivered in routine clinical care and can include various research designs such as pre–post, quasiexperimental, or experimental designs (Stewart & Chambless, 2009). Clinical representativeness is commonly achieved by utilizing one or more of the following qualities; routine clinical care settings (e.g., mental health centers, outpatient clinics), using practicing clinicians working in the clinics to deliver the treatment, and including patients who are ordinary referrals to the clinics (Hunsley, 2007; Hunsley & Lee, 2007; Stewart & Chambless, 2009). In addition, qualities such as a flexible structure of treatment, no treatment implementation monitoring, no therapist training for the study, clinically representative inclusion criteria, and no randomization procedure have been used to distinguish efficacy from effectiveness studies (Hans & Hiller, 2013; Stewart & Chambless, 2009). Treatment outcome research can be considered to vary along a continuum of internal and external validity (Hunsley & Lee, 2007; Stewart & Chambless, 2009). Across the various qualities of clinical representativeness, effectiveness studies examine how empirically supported treatments perform when transported and delivered in routine clinical care.

The first meta-analysis on effectiveness studies in anxiety disorders was published by Stewart and Chambless (2009), reporting the following within-group effect sizes (ESs, Hedges's *g*): for PD 1.01, SAD 1.04, and GAD 0.92. Benchmarking against three efficacy studies per disorder indicated that the effectiveness studies had mean ESs within the range of efficacy studies for SAD and GAD, and somewhat lower for PD. More recently, Hans and Hiller (2013) reported the following ESs (Cohen's *d*) from their meta-analysis of effectiveness studies in anxiety disorders: for PD 0.93 and for SAD 0.90; however, they did not use benchmarking. A recent meta-analysis of effectiveness studies for internalizing disorders in youth (Wergeland et al., 2021) used a much more comprehensive benchmarking strategy than that of Stewart and Chambless (2009). In direct meta-analytical statistical comparisons, they included all efficacy studies of mixed anxiety disorders (i.e., GAD, SAD, and separation anxiety) in the most recent meta-analysis of efficacy studies. The mean posttreatment ES (Hedges's *g*) for effectiveness and efficacy studies was exactly the same, 1.32, and the follow-up means were 1.91 for effectiveness and 1.84 for efficacy studies, indicating that CBT did as well in clinical routine care as in university settings. Stewart and Chambless (2009) included studies up to 2008 and Hans and Hiller (2013) up to 2012. Both these meta-analyses excluded internet- or computer-based therapies as well as brief treatments (less than six sessions). Recent research shows that internet-based treatment can be as effective as face-to-face therapies (Carlbring et al., 2018) and that brief treatment can be as effective as standard therapy (Öst & Ollendick, 2017). In addition, Stewart and Chambless excluded studies that used psychotropic medication as part of the treatment, and Hans and Hiller (2013) excluded RCTs. However, many patients in routine clinical care receive antidepressants, and including studies where a proportion having drug treatment concurrently increases the external validity of the findings. Also, new research shows that RCTs can be used in effectiveness studies. Finally, the benchmarking against efficacy studies was done by selecting three (Stewart & Chambless, 2009) and five (Hans & Hiller, 2013), respectively, but without statistically testing the difference in mean ES. Thus, in addition to having studies published during the last 10 years, including RCTs and studies where a proportion of patients receive psychotropic medication, the present meta-analysis will use a more comprehensive benchmarking against efficacy studies.

A number of variables have in previous meta-analyses been found to moderate the ES. In the present meta-analysis, we will use four categorical variables. *Study design*; as we are including both RCTs and nonrandomized studies of intervention (NRSI) or pre–post trials,

it is important to assess if there is a difference in ES between these designs. *Statistical analysis*; previous meta-analyses have found no difference in ES between intent-to-treat (ITT) and completer analysis (e.g., Cuijpers et al., 2012), that completer analysis yielded higher ES (e.g., Öst et al., 2015), or that ITT analysis yielded higher ES (e.g., Schwartze et al., 2019). Thus, from a methodological point of view, this is an important moderator to assess. *Risk of bias*; high risk of bias (RoB) has been associated with high ES (e.g., Bürkner et al., 2017; Cuijpers, Sijbrandij, et al., 2014), but there are meta-analyses that did not find RoB to be a significant moderator (e.g., Carpenter et al., 2018; Cuijpers et al., 2012), and those finding that studies with low RoB yielded higher effect (e.g., van der Berg et al., 2019; van Dis et al., 2020). Thus, RoB is included as a moderator. *Continent*; previous meta-analyses investigating this variable have found different results. For example, Cuijpers et al. (2013) found that studies from North America yielded higher ES than studies from Europe, whereas Öst (2014) and Wergeland et al. (2021) reported that studies from Europe yielded higher ES than studies from other continents.

There are also a number of continuous variables of interest as potential moderators as previous research has found inconsistent results. *Pretreatment severity* has in a number of meta-analyses using within-group ES been found to positively moderate outcomes (e.g., Cuijpers et al., 2014; Öst et al., 2015, 2016; Riise et al., 2021; Wergeland et al., 2021). *Methodological quality* has in previous meta-analyses been found to be associated with lower ES (e.g., A-Tjak et al., 2015; Hedman-Lagerlöf et al., 2018; Öst, 2014), as well as with higher ES (e.g., Finnes et al., 2019; Helander et al., 2022; Öst et al., 2016). *Proportion of female participants* has in meta-analyses been both a positive moderator (e.g., Öst, 2014) and a negative moderator (e.g., Öst et al., 2015). *Mean age of the sample* has also been found to be a positive moderator (e.g., Öst & Ollendick, 2017; Wergeland et al., 2021) as well as a negative moderator (e.g., Öst et al., 2015; Riise et al., 2021). *Number of treatment sessions* has in some meta-analyses been found to be a positive moderator (e.g., Cuijpers et al., 2014; Hans & Hiller, 2013; Wergeland et al., 2022) but in at least one meta-analysis it was a negative moderator (Öst & Ollendick, 2017). *Proportion of patients on psychotropic medication for their anxiety disorder* has in at least two meta-analyses been associated with lower effect (Öst et al., 2015; Springer et al., 2018). The fact that previous meta-analyses of primarily efficacy studies have found various results for the included potential moderators makes it interesting to study them in effectiveness studies as well.

The present article will contribute to the existing literature by providing a meta-analysis of the effectiveness of CBT for PD, AGO, SAD, and GAD for adults treated in routine clinical care. CBT refers to cognitive, behavioral, or the combination of cognitive and behavioral therapy. Effectiveness studies were defined by studies in which patients were referred for treatment through usual clinical routes, the treatments were delivered in routine clinical practices by therapists for whom provision of service is a substantial part of their job. Both RCTs and NRSI/pre–post trials were included to better capture all studies conducted in routine clinical care contexts and be as comprehensive as possible. A stringent form of benchmarking was done by using meta-analytical statistical methods and directly comparing effectiveness and efficacy studies of PD, AGO, SAD, and GAD regarding ES and remission rates, both at posttreatment and follow-up. The efficacy studies were retrieved from recent meta-analyses on the respective disorders (please see "Method" section).

Our specific aims were to: (a) examine the effectiveness of CBT for PD, AGO, SAD, and GAD in routine clinical care regarding the primary anxiety measures as well as a secondary measure of depression, (b) evaluate methodological quality in the effectiveness studies, and investigate potential moderators of treatment outcome, and (c) examine how CBT delivered in routine clinical care do in comparison with efficacy studies for the same disorders. Based on the previous meta-analyses in adults (Hans & Hiller, 2013; Stewart & Chambless, 2009) and youth (Wergeland et al., 2021), we predicted that the ESs for effectiveness studies will be comparable to those of efficacy studies.

Method

The protocol for this meta-analysis was preregistered at PROSPERO with ID CRD42021228828. Except for breaking out studies on obsessive-compulsive disorder (OCD) and posttraumatic stress disorder (PTSD) to separate meta-analyses, there was no deviation from the published protocol. The meta-analysis was conducted according to the PRISMA guidelines (Liberati et al., 2009) and reported according to AMSTAR 2 (Shea et al., 2017), see S1 and S2 in the online supplemental materials. It was designed according to the PICOS acronym in the following way:

- *Population*: adults with PD, AGO, SAD, or GAD. We had planned to include specific phobias but only found four effectiveness studies, which is too few for a meta-analysis.
- *Intervention*: CBT, CT, or BT evaluated by APA Division 12, NICE guidelines, or Australian Psychological Society as having strong or modest research support and delivered in routine clinical care. Both face-to-face and internet-based interventions are included.
- *Comparison*: within-group change, that is, pre- versus post-data (and pre- vs. follow-up data).
- *Outcome*: primary (disorder-specific anxiety symptoms) and secondary (symptoms of depression) continuous measure, and dichotomous measure of remission.
- *Study design*: RCTs, NRSI, and pre–post trials.

Literature Search

Studies were identified by a systematic and comprehensive literature search of electronic databases and scanning of the included articles' reference lists. The search was applied to Ovid MEDLINE, Embase OVID, and PsycINFO from the start of the databases to June 22, 2020. Updated searches were done in May 2022. The list of search terms utilized to identify potential studies was generated by all authors in collaboration with a university librarian, who conducted the database searches. We used the following search terms to search the databases: (Cognitive therapy; behav* therapy; cognitive behav* therapy; cognitive behav* treatment; acceptance and commitment therapy; ACT) AND (social phobia; social anxiety disorder; agoraphobia; agoraphobi*; panic disorder; generalized anxiety disorder; GAD) AND (open study; clinical study; community trial; intervention study; pre post study; randomised controlled trial) AND (outpatient clinics; community mental health services; effectiveness; routine care; regular care, community clinic*) AND adults. For full search

strategy for Ovid MEDLINE, Embase OVID, and PsychINFO, see S3 in the online supplemental materials.

Three pairs of authors read the titles and abstracts of all the papers from this initial search to decide whether a study warranted a more detailed reading. At this stage, the Rayyan software for systematic reviews (https://www.rayyan.ai) was used. We were overinclusive at this stage, and if there was any indication of a target group of patients receiving the particular cognitive-behavioral treatment in a routine clinical care setting, the full-text was retrieved. The reference lists in the retrieved articles, as well as previously published meta-analyses on this issue, were then checked against the database search and any other articles that might fulfill the inclusion criteria were retrieved. In total, 398 full-text articles were considered for inclusion. The final decision for article inclusion was made using a stricter set of inclusion and exclusion criteria detailed below. The full-text articles were read by pairs of authors, and any disagreements were resolved by consensus discussion among the authors and/or consultation with the first author. It was determined that 66 articles could be included in the present meta-analysis.

Inclusion Criteria

To be included in the review and meta-analysis a study had to:

1. Be published, or in press, in an English language journal.
2. Have participants diagnosed with PD, AGO, SAD, or GAD according to DSM (III and later) or ICD (10 or 11).
3. Be testing a form of CBT, CT, or BT that is evaluated as having strong or modest research support by Division 12 of the APA, NICE guidelines, or the Australian Psychological Society (2018).
4. Have participants referred for treatment through usual clinical routes.
5. Be an effectiveness study, that is, carried out in a routine clinical care setting such as a community mental health center, at patients' homes, etc.
6. Have therapists who are practicing clinicians for whom provision of service is a substantial part of their job (Shadish et al., 2000).
7. Have a treated sample consisting of at least 10 participants.
8. Have a minimum participant age of 18.
9. Provide a continuous or dichotomous measure of the principal disorder treated, with data making it possible to calculate ES.

In both DSM-III (American Psychiatric Association, 1980) and DSM-5 (APA, 2013), PD and AGO are two separate anxiety disorders. However, many articles applying DSM-IV criteria (American Psychiatric Association, 1994) just used the term panic disorder. To categorize a study as PD or AGO, we used the description of the study sample. If more than 50% of the participants were diagnosed with moderate or severe AGO, the study was classified as AGO, if not it was a PD-study.

Exclusion Criteria

1. The study is a secondary analysis of a previously published study. Separate follow-up studies to the basic study are included to provide follow-up data.
2. The study is an evaluation of a service where the results for individual disorders *cannot* be extracted.
3. The study is testing a combination of CBT/CT/BT and pharmacological treatment, and all participants in that condition receive both treatments.

Potential Categorical Moderators

To include any potential categorical or continuous moderator in the analysis, we required that at least 70% of the studies provided information on that variable. With lower proportions, it is questionable if the information extracted is representative of the entire body of studies. Study design was either RCT (when a CBT-condition was compared with some kind of control/comparison condition) or an NRSI or pre–post trial (when only a CBT-condition was used in the study). Statistical analysis was categorized as ITT if all randomized or starting participants were included in the statistical analysis or completers if dropouts were deleted. RoB was based on a summary evaluation of the domains rated for the different designs (see below) the studies were categorized as low, moderate, or high RoB. Continent: the country in which the study was carried out was categorized as North America, South America, Europe, Asia, Australia, or Africa.

Potential Continuous Moderators

The following continuous variables were used as potential moderators: pretreatment severity (calculated as percentage of the maximum score of the applied rating scale), methodological quality (see below), proportion of female participants in the sample, mean age of the sample, number of treatment sessions, and proportion of patients on psychotropic medication for their anxiety disorder.

A coding scheme and manual including the variables of interest were developed. The data extraction and categorizations were done independently by pairs of authors, and any disagreements were solved after a consensus discussion.

Methodological Quality

The Psychotherapy Outcome Study Methodology Rating Scale

The scale consists of 22 items covering various important aspects of the methodology in psychotherapy outcome research (Öst, 2008). Each item is rated as 0 = *poor*, 1 = *fair*, and 2 = *good*, and each step has a verbal description of one or more sentences. The total score can vary from 0 to 44 points. As all items were not applicable to all studies, the total score was recalculated as a percentage of the maximum score possible for the individual study. The internal consistency of the scale was good with a McDonald's ω of 0.78. The interrater reliability of the scale (between the first and the last author), based on 20% randomly selected and blindly rated studies, was ICC = 0.95 (95% CI [0.84–0.99], $p = .0001$), which according to Cicchetti (1994) is excellent.

Risk of Bias

For RCTs, the Cochrane Collaboration tool for assessing risk of bias (RoB-2; Sterne et al., 2019) was used, and the following domains were rated: the randomization process, missing outcome data, measurement of the outcome, and selection of the reported

result. The domain deviations from intended interventions were not rated because therapists and patients in psychotherapy studies cannot be blind regarding the treatment applied. For NRSI and pre–post studies, the RoB in nonrandomized studies of interventions (ROBINS-I; Sterne et al., 2016) was applied. The following domains were judged: confounding, selection of participants, classification of interventions, deviations from intended interventions, missing data, measurement of outcome, and selection of the reported result. Overall classification of the studies was done for RCTs into the categories high, some concerns, or low RoB. For the NRSI and pre–post studies, the categories low, moderate, serious, or critical RoB were used. When the results across these different study designs were judged to be at similar RoB, these classifications were combined into one: low, moderate (some concerns), and high (serious) RoB. The interrater reliability of the overall RoB-ratings (between the first and the last author), based on 20% randomly selected and blindly rated studies, was Cohen's $\kappa = 0.82$, $p < .001$, which according to Cicchetti (1994) is excellent.

Effect Size Measures

Patients applying for treatment at clinics in the community are often less interested in whether the treatment is superior to a control condition and more interested in the degree of improvement that can be expected and the chance of achieving remission following the treatment offered. Thus, in this meta-analysis, we used the pre–post and pre-follow-up ES, as well as the rate of remission at posttreatment and follow-up assessment as outcome measures. We extracted data on both primary and secondary measures in the studies. As some studies used the proportion of remitted participants as their primary outcome measure, whereas other studies used a continuous rating scale, we decided to extract both in this meta-analysis.

Continuous Rating Scales

When a study specified its primary outcome measure among rating scales, we used that. If none was pinpointed, we selected measures in the following order if available: independent assessor rating, behavioral test measure, and self-report scale. All studies of the included anxiety disorders provided data on a continuous rating scale. The various rating scales used for the respective studies are described in S5 in the online supplemental materials.

Remission

PD. Of the 10 studies providing remission data, five used panic-free status for 2–3 weeks, three used Jacobson and Truax (1991) criteria for clinically significant change on their primary measure, and two used loss of principal diagnosis.

AGO. Of the 13 studies providing remission data, four used panic-free status for 2–3 weeks, four used high end state functioning on various measures (7/7, 3/3, 4/5, and 2/3), three used loss of principal diagnosis, and two used clinically significant change.

SAD. Of the 13 studies providing remission data, 11 used clinically significant change, one high end state functioning (on 2/3 measures), and one loss of principal diagnosis.

GAD. Of the nine studies providing remission data, six used clinically significant change, two used a score below caseness on the GAD-7 self-rating scale, and one used a score of 1 or 2 on the Clinical Global Impression-Severity Scale.

As there is such a large variation of remission measures used across the studies, we decided not to compare the different anxiety disorders on this measure. However, within the disorders, the remission measures are much more similar, which makes a comparison between effectiveness and efficacy studies on this measure possible.

Secondary Outcome Measures

As depressive disorder or symptoms are common comorbid problems in anxiety disorders, we extracted data on depressive symptoms. We also extracted data on quality of life but only 4% of the studies provided such data, which made it impossible to use in the meta-analysis.

Meta-Analysis

To obtain as large as possible a body of effectiveness studies, we included both RCTs and NRSI/pre–post trials in the meta-analysis because within-group ES can be calculated from both types of studies. Within-group ES was calculated as $(M_{pre} - M_{post})/SD_{pre}$ according to a recommendation by Lakens (2013), as there is good reason to assume that the interventions influence not only the means but also the standard deviations. The mean ES was computed by weighting each ES by the inverse of its variance. When a study presented ITT data these were used, if not completer data were used.

Before pooling, the ESs were screened for statistical outliers, defined as being outside $M \pm 2SD$. At the posttreatment assessment, one (1.2%) of the ESs was an outlier, and at the follow-up assessment, there was also one (1.7%). For these ESs, *winsorising* (Lipsey & Wilson, 2001) was used by reducing outliers to the exact value of $M + 2SD$. The software *Comprehensive Meta-Analysis v.3* (CMA; Borenstein et al., 2013) was used for all analyses, and to correct for small sample sizes, Hedges' g was calculated. A random effects model was used because it cannot be assumed that the ESs come from the same population.

Proportions of attrition and remission were calculated in CMA. The values of the individual studies were transformed using logit transformation, and the meta-analysis was done on the transformed proportions using the random effects model. Then the pooled proportion and its 95% confidence interval were back transformed to a proportion (according to recommendations by Barendregt et al., 2013; Barker et al., 2021).

Heterogeneity among ES's was assessed with funnel plots, the Q- and the I^2-statistic. The possibility of publication bias was analyzed with the trim-and-fill method of Duval and Tweedie (2000) and Egger's regression intercept (Egger et al., 1998). Moderator analyses of continuous variables were carried out with meta-regression using the random effects model and for categorical variables with subgroup analysis using the mixed effect model.

Efficacy Studies for Comparison

To obtain the efficacy studies to be used in the comparison of the effect of CBT in effectiveness studies, we consulted the most recent meta-analyses of psychosocial treatments for different anxiety disorders. These were for PD: Sánchez-Meca et al. (2010) and Pompoli et al. (2018), for AGO: Sánchez-Meca et al. (2010) and Breuninger et al. (2019), for SAD: Mayo-Wilson et al. (2014) and Barkowski et al. (2016), and for GAD: Cuijpers et al. (2014).

From these reviews, we listed the RCTs of cognitive-behavioral treatments evaluated as having strong or modest research support according to the criteria adopted by Division 12 of APA, Australian Psychological Society, and NICE guidelines. Then we deleted those RCTs we had already included in the body of effectiveness studies. This resulted in the following number of RCTs for our comparison: PD 18, AGO 35, SAD 50, and GAD 28. These references are listed in S6 in the online supplemental materials.

As for the effectiveness studies, we extracted data for the primary continuous outcome measure and remission rate, separately at posttreatment and follow-up assessment. To compare the two categories of studies on background and treatment variables, we also extracted data on mean age, proportion of women, pretreatment severity (calculated as percent of maximum score on the continuous measure), proportion of comorbid disorders, proportion on psychotropic medication, treatment time (in hours), and attrition rate. Other variables were not reported systematically, or not at all in a large enough proportion of studies, which precluded inclusion as a background variable.

Power Analysis

In the overall comparison of effectiveness and efficacy studies, we have the following number of studies and treatment conditions, which is the unit of analysis: effectiveness studies 66/86 and efficacy studies 131/215, for a total number of 197 studies and 301 conditions with an average of 71 participants per condition. According to the formulas for power analysis in meta-analyses by Valentine et al. (2010), we would have 99.9% power to detect an ES of 0.20, when assuming that the heterogeneity of ESs will be high.

Results

Description of the Studies

Figure 1 shows a flowchart of the inclusion of studies in the present meta-analysis. For references to included studies, see S4 in the online supplemental materials.

Background Data

Background data for the included studies are shown in Table 1. There was a total of 66 studies, including 86 treatment conditions, as some studies had two or more CBT-conditions. Divided on disorder we found the following number of studies/conditions; PD: 11/13, AGO: 20/27, SAD: 23/28, and GAD: 12/18. The total number of participants receiving CBT-interventions in these studies were PD: 1,004, AGO: 1,652, SAD: 2,420, and GAD: 947, for a total of 6,113. The majority of the 66 studies was done in Europe ($n = 37$, 56%), followed by Australia ($n = 12$), North America ($n = 8$), Asia ($n = 6$), and South America ($n = 3$). There was a majority of women (62%), and the mean age of the samples was 36.1 (*SD* 6.8) years. Comorbidity was reported for only 57 conditions (66.3%), and the proportion of participants having at least one comorbid disorder was 53.4%. The mean pretreatment severity across all treatment conditions was 58.8% (*SD* 13.1%). Proportion of the samples taking prescribed psychotropic medications for their anxiety disorder at the time of inclusion was reported for 61 conditions (70.9%), and the mean was 46.8%. Finally, 61 conditions (70.9%) reported the proportion of eligible participants that declined the offer of treatment, and the mean was 10.1%.

Treatment Data

Treatment data for the included studies are presented in Table 2. The treatment format was individual in 47 conditions (55%) and group in 39 (45%). Number of therapists was reported in 67 conditions (77.9%) and was on average 9.5 (*SD* 12.6). The treatments were carried out over 11.7 (*SD* 6.8) weeks on average, with the mean number of therapy sessions being 11.5 (*SD* 5.9). Calculated as hours of treatment the mean was 17.0 (*SD* 10.6). It is notable that 15 treatment conditions (17.4%) reported zero dropout, and the range across all studies was 0%–39.1%. Sixty of the conditions (69.8%) provided follow-up data and the mean number of months after postassessment for these was 10.7 (*SD* 10.7) with a range from 1 to 55 months.

Methodological Data

Methodology Ratings

The research methodology score (% of maximum possible score for the individual study) had an overall mean of 50.6 (*SD* 10.2), which corresponds to a raw score of 22.3 points. The means for the different anxiety disorders were as follows: PD 50.3 (*SD* 7.7), AGO 49.6 (*SD* 9.6), SAD 49.1 (*SD* 12.1), and GAD 54.7 (*SD* 8.9) with no significant difference between them. Restricting the analysis to RCTs only yielded an overall mean of 55.6 (*SD* 12.5) and no significant difference between disorders.

Risk of Bias

The RoB classification is presented in S7 in the online supplemental materials. Among the 34 RCTs, eight studies had a low RoB, 18 had some concerns, and eight (24%) had a high RoB. Regarding the 52 NRSI/pre–post studies, 23 had a moderate and 29 (56%) had a high RoB.

Meta-Analysis

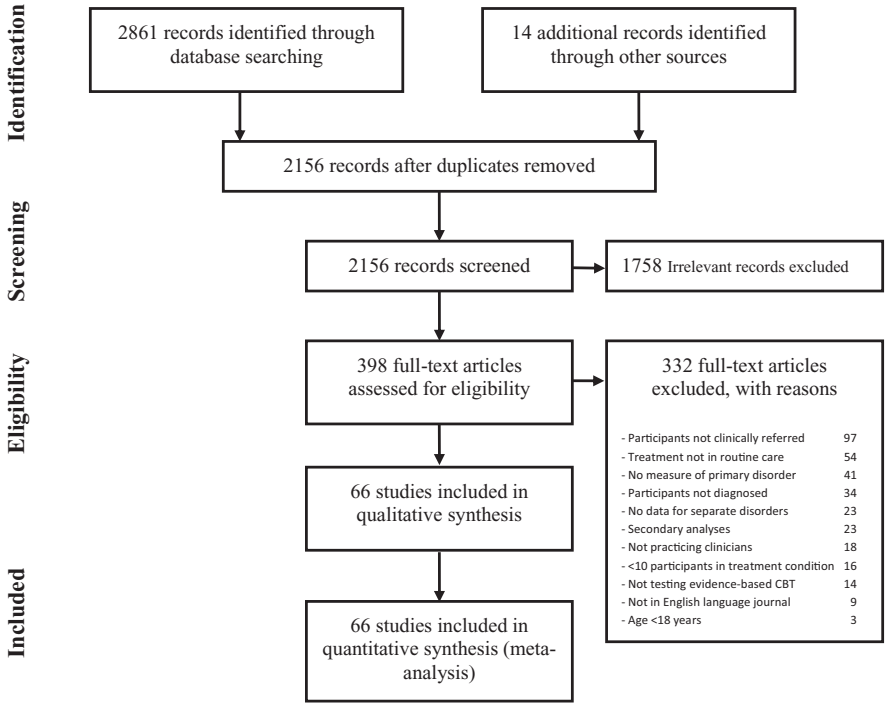
Attrition

With treatment condition ($k = 84$) as the unit of analysis, the overall attrition rate was 15.9% (95% CI [13.9–18.0], $z = 21.24$, $p < .0001$). The different disorders had the following mean attrition rates: PD 18.1%, AGO 14.5%, SAD 15.3%, and GAD 18.1% with a nonsignificant difference between them, $Q_{between}$ (3 df) = 2.81, $p = .42$.

Primary Continuous Measure

Table 3 presents the ESs for the primary anxiety measures across all studies at posttreatment and follow-up assessment, which was carried out on average 10.7 months after posttreatment assessment. At posttreatment, the overall ES was large (1.09) and significantly heterogeneous, as indicated by the Q- and I^2-values. The subgroup analysis across disorders yielded a significant $Q_{between}$ (3 df) = 9.01, $p = .029$, which was followed by pairwise comparisons. These showed that the ESs for PD (1.31) and GAD (1.26) were significantly higher, $Q_{between}$ (1 df) = 5.28 and 5.44, $p = .02$, than that for SAD (0.95). None of the other differences were significant.

Figure 1
Flowchart of the Inclusion of Studies



At follow-up, the overall ES (1.39) had increased significantly, $Q_{between}$ (1 *df*) = 11.91, $p < .001$, compared to postassessment and was significantly heterogeneous. The subgroup analysis across disorders was, however, not significant, and the ESs for the disorders ranged from 1.29 to 1.50.

Publication Bias. Egger's regression intercept yielded a significant $t = 2.54$, $p = .013$. The Duval and Tweedie's trim-and-fill method suggested trimming 13 studies, which would have reduced the *g*-value to 0.95 (95% CI [0.84–1.05]). Thus, publication bias may be a problem regarding within-group ES for these effectiveness studies.

Moderator Analyses

The mean ES for the primary anxiety measure was significantly heterogeneous, and we followed this up with moderator analyses. Table 4 presents the results for the categorical variables. RCTs and NRSI/pre–post trials gave very similar mean ES and whether studies used ITT or completer analysis did not affect ES significantly. RoB categorization was a significant moderator of ES and pairwise comparisons showed that studies with low RoB (1.82) yielded significantly higher, $Q_{between}$ (1 *df*) = 7.56, $p = .006$, ES than studies with moderate (1.11), and significantly higher, $Q_{between}$ (1 *df*) = 12.22, $p = .0001$, ES than studies with high (0.88) RoB. The treatment format was not a significant moderator. Finally, the continent on which the study was done was also a significant moderator. Studies from South America (1.52) had significantly higher, $Q_{between}$ (1 *df*) = 9.53, $p = .002$, ES than studies from Europe (1.02) and significantly higher, $Q_{between}$ (1 *df*) = 6.35, $p = .012$, than studies from Australia (1.03). However, this should be interpreted with caution as there were only three studies from South America.

Six continuous variables were analyzed with the meta-regression module in the CMA program using the random effects analysis. There were two positive moderators; pretreatment severity ($k = 85$, point estimate = 1.78, $z = 4.74$, $p = .00001$) and proportion of females in the treatment condition ($k = 85$, point estimate = 0.009, $z = 2.51$, $p = .012$). Higher severity before the start of treatment and higher proportion of females were associated with higher pre–post ESs. Methodological quality score, number of therapy sessions, mean age of the participants, and proportion taking prescribed psychotropic medication for their anxiety disorder did not significantly moderate the ES.

Secondary Continuous Measure

Table 3 presents the ESs for the most commonly reported secondary measure, that is, depressive symptoms, at posttreatment and follow-up. The overall ES was the same, 0.80, at both assessment points and was significantly heterogeneous. At posttreatment, the subgroup analysis across disorders was significant, $Q_{between}$ (3 *df*) = 8.57, $p = .036$, which was followed by pairwise comparisons. These showed that SAD had an ES (0.65), that was significantly lower than the ES for GAD (0.93), $Q_{between}$ (1 *df*) = 5.16, $p = .023$, the ES for PD (0.89), $Q_{between}$ (1 *df*) = 5.50, $p = .019$, and the ES for AGO, 0.86; $Q_{between}$ (1 *df*) = 4.68, $p = .030$.

At the follow-up assessment, the subgroup analysis once more yielded a significant $Q_{between}$ (3 *df*) = 9.05, $p = .029$. The pairwise comparisons showed that GAD (1.07) had a significantly higher

Table 1
Background Data of the Included Studies

Study	Country	Continent	RCT	Method of CBT	Comparison	*n*	Declining (%)	Severity	Females (%)	Mean age	Medicated (%)	Comorbidity (%)
Panic disorder												
Behenck, 2021	Brazil	SA	N	CBGT	WLC	50	19.7	0.571	70.3	39.0	64.9	73.0
Dannon, 2004	Israel	Asia	Y	CBGT	ADM	23		0.382	56.5	44.8	0.0	0.0
Deacon, 2006	USA	NA	N	CBT	None	10	28.6	0.450	80.0	38.4	70.0	30.0
Grey, 2008	UK	E	N	CT	TAU	26		0.738	81.0	37.1	31.0	
Hedman, 2013	Sweden	E	N	ICBT	None	570	0.0	0.375	60.7	37.3	40.1	0.0
Hunt, 1998	Australia	Aus.	N	CBGT	None	41	25.4	0.475	54.8	32.4		
Lessard, 2012a	Canada	NA	Y	CBT-1 session	TAU	24	48.7	0.675	46.0	41.1		54.0
Lessard, 2012b	Canada	NA	Y	CBT-7 sessions	TAU	19	48.7	0.688	53.0	46.6		84.0
Nordgreen, 2018b	Norway	E	N	ICBT	None	124	25.5	0.540	65.3	35.9	62.2	
Rief, 2000a	Germany	E	N	CBGT-no MD	None	45	0.0	0.610	67.0	41.2	38.0	49.0
Rief, 2000b	Germany	E	N	CBGT-with MD	None	35	0.0	0.780	71.0	42.9	48.0	49.0
Sokol, 1989	USA	NA	N	CT	None	17		0.411				
Wade, 1998	USA	NA	N	PCT	None	110		0.413	70.9	31.1	82.6	41.3
Agoraphobia												
Bergström, 2009	Sweden	E	N	ICBT	None	20		0.561	55.0	34.0	70.0	45.0
Bergström, 2010a	Sweden	E	Y	ICBT	Other CBT	53	7.4	0.504	64.0	33.8	44.0	
Bergström, 2010b	Sweden	E	Y	CBGT	Other CBT	60	7.4	0.507	59.0	34.6	46.0	
Botella, 1999a	Spain	E	Y	Standard CBT	Other CBT	12	0.0	0.860	78.0	29.0	53.0	
Botella, 1999b	Spain	E	Y	Brief CBT	Other CBT	11	0.0	0.710	78.0	29.0	45.5	
Burke, 1997a	England	E	Y	Exposure	Other CBT	20		0.735	100.0	40.0	50.0	
Burke, 1997b	England	E	Y	CBT	Other CBT	19		0.734	100.0	40.1	42.0	
Fairholme, 2017	USA	NA	N	PCT	None	100	0.0	0.500	69.0	34.8		31.0
Garcia-Palacios, 2002	Spain	E	N	CBGT	None	25	0.0	0.483	88.0	31.2		
Hahlweg, 2001	Germany	E	N	E (high density)	None	416	13.0	0.640	67.0	35.6	65.0	
Heldt, 2006	Brazil	SA	N	CBGT	None	71		0.750	71.9	39.0	100.0	77.0
Heldt, 2007	Brazil	SA	N	CBGT	None	52		0.780	62.0	36.4	100.0	60.0
Hendriks, 2010	Netherlands	E	Y	CBT	WLC	20	16.9	0.480	55.0	69.6	30.0	10.0
Hendriks, 2014a	Netherlands	E	N	CBT young	None	141		0.500	66.0	35.2	30.5	32.6
Hendriks, 2014b	Netherlands	E	N	CBT old	None	31		0.500	67.7	67.9	25.8	22.5
Hunt, 1998	Australia	Aus.	N	CBGT	None	43	25.4	0.575	54.8	32.4		
Joorman, 2005a	Germany	E	N	CBT (no depr)	None	62	0.0	0.520	59.7	37.7		43.2
Joorman, 2005b	Germany	E	N	CBT (w depr)	None	47	0.0	0.580	68.1	41.2		43.2
Korrelboom, 2014a	Netherlands	E	Y	AR	Other CBT	73	6.5	0.520	64.0	36.1		
Korrelboom, 2014b	Netherlands	E	Y	COMET	Other CBT	70	6.5	0.540	64.0	36.1		
Lovell, 2003	England	E	N	CBT-SH	None	25	3.8	0.693	85.0	35.0	64.0	
Martinsen, 1998	Norway	E	N	CBT	None	83		0.550	67.5	34.5	67.5	66.0
Nordgreen, 2016a	Norway	E	Y	Stepped care CBT	Other CBT	36	13.3	0.675	52.8	34.2	69.4	66.7
Nordgreen, 2016b	Norway	E	Y	FtF CBT	Other CBT	33	4.3	0.688	69.7	35.7	66.7	51.5
Penava, 1998	USA	NA	N	CBGT	None	39	0.0	0.525	70.3	35.8	73.0	70.0
Rosenberg, 2005	Denmark	E	N	CBGT	None	60	11.7	0.280	73.6	33.1	58.5	86.8
Sanderson, 1998	USA	NA	N	CBT	None	30		0.550	73.0	37.0	0.0	
Social phobia												
Aderka, 2011	Israel	Asia	N	CBT	No	192	5.7	0.527	47.4	29.7	37.0	71.0
Andrews, 2011a	Australia	Aus.	Y	FtF CBT	Other CBT	14	0.0	0.549	40.5	31.9		
Andrews, 2011b	Australia	Aus.	Y	ICBT	Other CBT	23	26.1	0.550	40.5	31.9		
Colhoun, 2021	New Zealand	Aus.	N	GCT	None	159	0.0	0.553	53.0	34.1		16.0
Fogarty, 2019	Ireland	E	N	CBGT	None	138	12.1	0.481	55.1	38.7		
Gaston, 2006	Australia	Aus.	N	CBT	No	54		0.436	37.0	31.1	27.8	31.5
Hedman, 2011a	Sweden	E	Y	ICBGT	Other CBT	64		0.475	37.5	35.2	25.0	31.3
Hedman, 2011b	Sweden	E	Y	CBGT	Other CBT	62		0.499	33.8	35.5	24.2	33.9
Hunt, 1998	Australia	Aus.	N	CBT	No	40	25.4	0.800	54.8	32.4		
Joorman, 2005a	Germany	E	N	CBT (no depr)	No	29	0.0	0.520	37.9	44.2		0.0
Joorman, 2005b	Germany	E	N	CBT (w depr)	No	41	0.0	0.520	58.5	40.3		58.6
Lincoln, 2003	Germany	E	N	E+CT	No	217	0.0	0.483	43.0	33.7	68.0	44.0
Marom, 2009a	Israel	Asia	N	CBGT for GSP	No	177	21.8	0.538	54.8	34.9	7.6	23.3
Marom, 2009b	Israel	Asia	N	CBGT for SSP	No	42	21.8	0.258	38.1	36.7	2.6	23.3
McCarthy, 2013	Ireland	E	N	CBGT	No	252		0.489	49.6	32.8		
McEvoy, 2007	Australia	Aus.	N	CBGT	No	153		0.494	39.0	32.5	48.0	74.0
McEvoy, 2012	Australia	Aus.	N	CBGT	No	94		0.520	40.0	32.8	62.0	57.0
McEvoy, 2014	Australia	Aus.	N	CBGT	No	19		0.560	52.6	29.7	63.0	52.6
McEvoy, 2015	Australia	Aus.	N	CBGT	Other CBT	53		0.535	53.0	29.0		74.0
McEvoy, 2018	Australia	Aus.	N	CBGT	No	123		0.556	58.5	28.5		74.0
Mörtberg, 2005	Sweden	E	N	CBGT	No	27	10.0	0.464	58.3	35.0	85.0	100.0
Mörtberg, 2006	Sweden	E	Y	CBGT	WLC	12	10.3	0.431	65.4	33.4	38.5	73.1
Nordgreen, 2016a	Norway	E	Y	Stepped care CBT	Other CBT	49	7.1	0.688	42.9	30.7	55.1	81.6
Nordgreen, 2016b	Norway	E	Y	FtF CBT	Other CBT	55	6.3	0.700	49.1	31.3	46.2	83.6
Nordgreen, 2018	Norway	E	N	ICBT	No	169	23.9	0.508	56.8	29.8	40.2	
Santoft, 2019	Sweden	E	N	CBT-SH	No	61		0.435	60.7	33.3	39.4	37.7
Shirotsuki, 2014	Japan	Asia	N	CBT	None	15	0.0	0.468	20.1	46.7	53.3	53.3
Thew, 2020	England	E	N	CT	None	86	0.0	0.610	33.2	25.0	25.0	18.5

(*table continues*)

Table 1 (*continued*)

Study	Country	Continent	RCT	Method of CBT	Comparison	*n*	Declining (%)	Severity	Females (%)	Mean age	Medicated (%)	Comorbidity (%)
GAD												
Afshari, 2020	Iran	Asia	Y	CBT	Other CBT	34	9.3	0.833	55.9	28.2		61.8
Arntz, 2003a	Netherlands	E	Y	CT	Other CBT	25	0.0	0.719	66.7	35.9		77.8
Arntz, 2003b	Netherlands	E	Y	AR	Other CBT	20	0.0	0.671	66.7	35.9		77.8
Bogucki, 2021	USA	NA	N	CBT	No	358		0.705	69.7	37.9		45.6
Durham, 2004a	Scotland	E	N	CBT-brief	No	39	10.3	0.588	42.0	39.0	58.0	
Durham, 2004b	Scotland	E	N	CBT-standard	No	29	6.9	0.750	56.0	41.0	67.0	94.0
Durham, 2004c	Scotland	E	N	CBT-intensive	No	32	6.3	0.725	56.0	40.0	56.0	94.0
Haseth, 2019	Norway	E	N	MCT	No	23	28.1	0.676	95.7	29.7	17.4	73.9
Hirsch, 2019	England	E	N	CBT	No	57	0.0	0.676	75.4	33.0	46.0	
Linden, 2005	Germany	E	Y	CBT	WLC	36		0.479	83.3	43.3	0.0	
McEvoy, 2015	Australia	Aus.	N	MCT	No	52	5.5	0.826	60.0	38.0	67.3	63.0
van der Heiden, 2012a	Netherlands	E	Y	MCT	Other CBT	54	20.0	0.764	70.4	33.9	25.9	59.3
van der Heiden, 2012b	Netherlands	E	Y	CBT (IoU)	Other CBT	52	20.0	0.740	69.2	34.4	28.8	59.6
van der Heiden, 2013	Netherlands	E	N	MCT	No	33	0.0	0.754	63.6	31.3	48.5	72.7
White, 1992a	Scotland	E	Y	CT	Other CBT	31	9.2	0.726	80.6	36.9	61.3	
White, 1992b	Scotland	E	Y	BT	Other CBT	31	9.2	0.744	67.7	40.0	45.2	
White, 1992c	Scotland	E	Y	CBT	Other CBT	26	9.2	0.685	76.9	41.8	46.2	
Zemestani, 2021	Iran	Asia	Y	CBT-IoU	ADM	15	0.0	0.828	100.0	23.9	0.0	33.3

Note. Letters (a, b, or c) after the year for some studies indicate different treatment conditions within that study. Empty cells within each disorder section mean that the information on this variable was not provided. RCT: Y = yes, N = no. Method of CBT: AR = applied relaxation, BT = behavior therapy, CBGT = cognitive-behavioral group therapy, CBT = cognitive behavior therapy, COMET = competitive memory training, CT = cognitive therapy, E = exposure, FtF = face to face, GCT = group cognitive therapy, GSP = generalized social phobia, ICBGT = internet-based cognitive-behavioral group therapy, ICBT = internet-based CBT, IoU = intolerance of uncertainty, MCT = meta cognitive therapy, MD = major depression, PCT = panic control treatment, SH = self-help, SSP = specific social phobia. Comparison: ADM = antidepressant medication, TAU = treatment as usual, WLC = waitlist control.

ES, $Q_{between}$ (1 *df*) = 9.04, $p = .003$, than did SAD (0.60). None of the other ESs differed significantly from each other.

Effectiveness–Efficacy Comparison

Background and Treatment Variables

Table 5 presents a comparison of effectiveness and efficacy studies on some background and treatment variables. As there are seven statistical tests within each disorder, we used the Holm–Bonferroni correction. There were no significant differences between the two types of studies for PD and GAD. However, for AGO and SAD, there was one variable showing a significant difference; the proportion of patients taking prescribed psychotropic medications for their anxiety disorder was higher in effectiveness than in efficacy studies. We found no significant differences for any of the disorders between effectiveness and efficacy studies regarding mean age, proportion of females, pretreatment severity, proportion with comorbid disorders, hours of therapy, and attrition rate. Judging from the background and treatment variables that could be extracted, the effectiveness studies do not consist of participants who are easier, or more difficult, to treat compared to those in the efficacy studies.

Effect Size on Primary Outcome Measure

Table 6 displays the ES for the two types of studies, for all anxiety disorders combined and for the individual disorders tested with subgroup analysis. At posttreatment, the mean ESs were large and very similar for effectiveness (1.09) and efficacy (1.07) studies. None of the tests for individual disorders yielded a significant *Q*-value. At the follow-up assessment, the mean ESs were maintained or somewhat better (1.39 for effectiveness and 1.30 for efficacy) than at posttreatment with no significant differences between the types of studies, overall or for the individual disorders.

Remission

Table 7 shows the remission rates for the two categories of studies with the results of subgroup analysis. At posttreatment effectiveness studies (52.3%) had a somewhat higher mean remission rate than efficacy studies (49.1%), but the difference was not significant. The same outcomes were obtained for the comparison within individual anxiety disorders. At follow-up, both effectiveness (58.7%) and efficacy (55.9%) showed a small increase in remission rate, but the difference between them was still not significant. The same lack of significant differences was obtained for the individual disorders.

Comparison of RCTs Only

It is possible that the results presented in Tables 6 and 7 may have been unduly affected by pre–post/NRSI trials. To test this possibility, we repeated the analyses with only RCTs, but as this reduced the number of effectiveness conditions from 86 to 32 for ES and from 55 to 21 for remission rate, we did this test for overall data only. Table 8 presents the results and there was still no significant difference between effectiveness and efficacy studies, neither at posttreatment, nor at follow-up assessment.

Discussion

The first aim of this meta-analysis was to examine the effectiveness of CBT for PD, AGO, SAD, and GAD in routine clinical care regarding the primary anxiety measures and the secondary measure of depression. For the primary anxiety measures (Table 3), we found that the overall ES at posttreatment was large (1.09) with those of PD and GAD being significantly larger than that of SAD. Encouragingly, at follow-up, the ES had increased significantly to 1.39, but now the difference between disorders was not significant. These results corroborate the posttreatment findings of Stewart and

Table 2
Treatment Data for the Included Studies

Study	Treatment format	No. of therapists	Profession	Mode	Weeks	Sessions	Tx hours	Percent attrition	Follow-up months	Statistical analysis
Panic disorder										
Behenck, 2021	G			T	12	12	18.0	26.0		Compl.
Dannon, 2004	G	2	Nurses	T	8	8	16.0	4.2		Compl.
Deacon, 2006	I	1	Psychol.	T	1	2	9.0	0.0		ITT
Grey, 2008	I	7	Couns.	T	9	9	7.5	7.7	6	ITT
Hedman, 2013	I		Psychol.	S	11	7.1	2.0	29.1	6	Compl.
Hunt, 1998	G	2	Mixed	T	3	10		12.1	20	Compl.
Lessard, 2012a	I	4	Psychol.	T	1	1	2.0	0.0	6	ITT
Lessard, 2012b	I	4	Psychol.	T	4	7	7.0	26.3	6	ITT
Nordgreen, 2018	I		Psychol.	S	9	6.2		27.2	6	ITT
Rief, 2000a	G		Mixed	T	8	8	16.0	0.0	12	ITT
Rief, 2000b	G		Mixed	T	8	8	16.0	0.0	12	ITT
Sokol, 1989	I	9	Psychol.	T	18	18	17.9	0.0	12	Compl.
Wade, 1998	G		Psychol.	T	15	15	22.0	26.4	12	Compl.
Agoraphobia										
Bergström, 2009	I		Psychol.	S	10	10	1.9	10.0	6	ITT
Bergström, 2010a	I	1	Psychol.	S	10	10	0.6	12.0	6	Compl.
Bergström, 2010b	G	2	Psychol.	T	10	10	20.0	9.3	6	Compl.
Botella, 1999a	I		Psychol.	T	10	10	8.3	16.7	12	Compl.
Botella, 1999b	I		Psychol.	T	5	5	4.2	9.1	12	Compl.
Burke, 1997a	I	13	Psychol.	T	10	10	25.0	30.0	6	Compl.
Burke, 1997b	I	13	Psychol.	T	10	10	30.0	36.8	6	Compl.
Fairholme, 2017	I	4	Psychol.	T	NI	12.7	12.7	29.0	17	ITT
Garcia-Palacios, 2002	G	2	Psychol.	T	14	14	21.0	0.0		Compl.
Hahlweg, 2001	I	52	Psychol.	T	1	36.2	30.2	21.5	12	Compl.
Heldt, 2006	G	2	Mixed	T	16	12	24.0	4.7	12	Compl.
Heldt, 2007	G	2	Mixed	T	16	12	24.0	3.8	12	Compl.
Hendriks, 2010	!		Psychol.	T	14	14	11.7	5.0	3	ITT
Hendriks, 2014a	!		Psychol.	T	14	14	11.7	20.6		Compl.
Hendriks, 2014b	!		Psychol.	T	14	14	11.7	6.5		Compl.
Hunt, 1998	G	2	Mixed	T	3	10		16.3	20	Compl.
Joorman, 2005a	I	35	Mixed	T	NI	24	20.0	0.0		ITT
Joorman, 2005b	I	35	Mixed	T	NI	27.5	22.9	0.0		ITT
Korrelboom, 2014a	G	4	Nurse	T	7	7	10.5	17.8		ITT
Korrelboom, 2014b	G	4	Psychol.	T	7	7	10.5	15.7		ITT
Lovell, 2003	I	3	Nurse	S	10	10	5.0	20.0	1	Compl.
Martinsen, 1998	G	3	Soc. worker	T	11	11	44.0	14.4	12	Compl.
Nordgreen, 2016a	I	23	Psychol.	T	22	20.8	13.0	16.1	12	ITT
Nordgreen, 2016b	I	23	Psychol.	T	12	10.4	10.0	9.4	12	ITT
Penava, 1998	G		Psychol.	T	14	12	18.0	5.1		Compl.
Rosenberg, 2005	G	2		T	14	14	21.0	11.6	21	Compl.
Sanderson, 1998	I		Psychol.	T	12	12	12.0			Compl.
Social phobia										
Aderka, 2011	G	3	Psychol.	T	18	18	27.0	29.8	3	ITT
Andrews, 2011a	G	1	Psychol.	T	7	7	28.0	0.0		ITT
Andrews, 2011b	I	1	Psychol.	S	8	6	0.0	17.6		ITT
Colhoun, 2021	G		Mixed	T	9	9	36.0	29.0		Compl.
Fogarty, 2019	G	2	Psychol.	T	14	14	35.0	6.0	55	Compl.
Gaston, 2006	G	2	Psychol.	T	12	10	30.0	7.1	3	ITT
Hedman, 2011a	I	8	Psychol.	S	15	9.3	2.5	9.8	50	ITT
Hedman, 2011b	G	6	Psychol.	T	15	9.4	25.0	16.1	50	ITT
Hunt, 1998	G	2	Mixed	T	3	10		12.1	20	Compl.
Joorman, 2005a	I	35	Mixed	T		25.6	25.6	0.0		ITT
Joorman, 2005b	I	35	Mixed	T		25.7	25.7	0.0		ITT
Lincoln, 2003	I	57	Psychol.	T	1	6	42.0	8.3		ITT
Marom, 2009a	G	2	Psychol.	T	18	18	27.0	24.9	12	Compl.
Marom, 2009b	G	2	Psychol.	T	18	18	27.0	28.6	12	Compl.
McCarthy, 2013	G		Psychol.	T	14	14	35.0	6.3	12	Compl.
McEvoy, 2007	G	3	Psychol.	T	7	6.1	28.0	18.0		Compl.
McEvoy, 2012	G		Psychol.	T	12	12	24.0	38.3		Compl.
McEvoy, 2014	G	3	Psychol.	T	12	10.7	24.0	5.3	1	ITT
McEvoy, 2015	G	4	Psychol.	T	12	10.9	24.0	9.4	1	ITT
McEvoy, 2018	G	3	Psychol.	T	12	9.6	24.0	21.7	1	ITT
Mörtberg, 2005	G	3	Psychol.	T	3	16	41.0	3.7	12	Compl.
Mörtberg, 2006	G	2	Psychol.	T	3	16	41.0	7.7	12	Compl.

(*table continues*)

Table 2 (*continued*)

Study	Treatment format	No. of therapists	Profession	Mode	Weeks	Sessions	Tx hours	Percent attrition	Follow-up months	Statistical analysis
Nordgreen, 2016a	I	23	Mixed	T	22	19.9	13.0	39.1	12	ITT
Nordgreen, 2016b	I	23	Mixed	T	12	10.4	10.0	28.8	12	ITT
Nordgreen, 2018	I		Psychol.	S	14	5.3	2.9	22.1	6	ITT
Santoft, 2019	I	12	Psychol.	S	9	2	1.3	16.4		Compl.
Shirotsuki, 2014	I	1	Psychol.	T	6	6	5.0	0.0		ITT
Thew, 2020	I	36	Mixed	T	14	12.3	18.5	7.8		Compl.
GAD										
Afshari, 2020	I	2	Psychol.	T	16	16	16.0	8.8	3	Compl.
Arntz, 2003a	I	13	Psychol.	T	12	12	12.0	20.0	6	ITT
Arntz, 2003b	I	12	Psychol.	T	12	12	12.0	15.0	6	ITT
Bogucki, 2021	I	23	Mixed	T	22	3.6	3.6			Compl.
Durham, 2004a	I	10	Psychol.	T	26	4.9	4.1	20.7	6	Compl.
Durham, 2004b	I	10	Psychol.	T	26	9	7.5	22.2	6	Compl.
Durham, 2004c	I	10	Psychol.	T	26	14.7	12.3	33.3	6	Compl.
Haseth, 2019	G	2	Mixed	T	10	10	15.0	0.0	3	ITT
Hirsch, 2019	I		Mixed	T	12	12	12.0	15.8		ITT
Linden, 2005	I	6	Psychol.	T	45	21.6	20.8	13.9	8	ITT
McEvoy, 2015	G	3	Psychol.	T	6	6	12.0	11.5	1	ITT
van der Heiden, 2012a	I	4	Psychol.	T	14	12.3	10.5	18.0	6	ITT
van der Heiden, 2012b	I	5	Psychol.	T	14	12.9	10.5	23.3	6	ITT
van der Heiden, 2013	G	4	Psychol.	T	14	12.9	21.0	27.3	6	ITT
White, 1992a	G	2	Psychol.	T	6	6	12.0	12.0	6	Compl.
White, 1992b	G	2	Psychol.	T	6	6	12.0	15.0	6	Compl.
White, 1992c	G	2	Psychol.	T	6	6	12.0		6	Compl.
Zemestani, 2021	I	1	Psychol.	T	12	12	12.0	0.0		ITT

Note. Empty cells within each disorder section mean that the information on this variable was not provided. Letters a, b, and c after the year indicates different treatment conditions. Treatment format: G = group, I = individual. Profession: Couns. = counselors, Mixed = different professions in the treatment team, Psychol. = psychologists, Social = social workers. Mode of treatment: T = therapist administered, S = self-administered. Statistical analysis: Compl. = completers only, ITT = intention to treat analysis.

Chambless (2009) and Hans and Hiller (2013) who reported ESs for PD of 1.01 and 0.93, respectively, where we found 1.28. The corresponding ESs for SAD were 1.04 and 0.90, when we found 0.92. For GAD Stewart and Chambless reported an ES of 0.92, we found 1.22. Hans and Hiller (2013) analyzed follow-up data 12 months or longer after postassessment and found nonsignificant improvements from post for PD and SAD; we found basically the same effects.

When it comes to the secondary measure of depression, we found a large overall ES of 0.80 both at postassessment and at follow-up. As was the case for the primary measure, SAD had a significantly lower ES (0.64) than GAD (0.93) and PD (0.90) at postassessment. At follow-up, SAD had a lower ES (0.60) than GAD (1.07). Hans and Hiller (2013) also analyzed depression scores finding an ES of 0.66 for SAD and 0.95 for PD, which are very similar to what we found. Thus, it can be concluded that CBT in clinical routine care yields large ESs both for primary anxiety measures and secondary depression measures.

The second aim was to evaluate methodological quality in the effectiveness studies and investigate potential moderators of treatment outcomes. The overall mean research methodology score on Psychotherapy Outcome Study Methodology Rating Scale (POMRS) was 50.6% corresponding to a raw score of 22.3, with no significant difference between the disorders. We are aware of 40 meta-analyses that have used the POMRS to rate the methodological quality of the included studies. Eight of these concern anxiety disorders in adults or youth reporting the following means: Peeters et al. (2021) 15.4, Swain et al. (2013) 17.3, Öst and Ollendick (2017) 21.1, Morina et al. (2015) 21.5, Öst et al. (2022) 22.9, Öst et al. (2015) 23.0, Öst et al. (2016) 24.8, and Guzick et al. (2018) 27.4, with a median of 22.2, which is the same as the mean of the present meta-analysis.

The first set of moderator analyses was done with a subgroup analysis of categorical variables (Table 4). The design of studies and type of statistical analysis did not affect ES significantly, which is reassuring. It indicates that patients randomized to CBT within RCTs improve as much as patients participating in NRSI/pre–post trials and that completer analysis does not inflate ES in this body of studies. The same results were found by Cuijpers et al. (2012) and Öst et al. (2022). Regarding RoB, we found that studies with low RoB yielded higher ES than studies with moderate or high RoB, which is uncommon, as the majority of meta-analyses investigating RoB either find no significant difference or that high RoB yields higher ES. There are at least two meta-analyses that have got the same result as we did. van Dis et al. (2020) investigated the long-term effects of CBT for anxiety disorders and found that for PTSD high-quality (low RoB) studies showed larger ESs. van den Berg et al. (2019) meta-analyzed studies of psychological treatments for anorexia nervosa and reported that high-quality studies had larger effects on weight gain and quality of life. Thus, future meta-analyses should assess the moderation effect of RoB.

The moderator analyses of continuous variables were done with meta-regression. We found that higher pretreatment severity was associated with larger ES. This is reasonable because such samples have more room for improvement, but also clinically encouraging because samples with high severity may improve to subclinical

Table 3

Within-Group Effect Size (Hedges' g) of the Primary (Anxiety) and the Secondary (Depression) Effect Measure for All Studies Divided by Disorder With Treatment Condition as Unit of Analysis

Disorder	*k*	*g*-Value	95% CI	*z*-Value	*Q*-value	I^2 (%)	Qb[a]
Primary measure post							
All disorders	86	1.09	[0.99–1.19]	21.69***	644.1***	86.8	9.01*
PD	13	1.31	[1.03–1.59]	9.23***	85.5***	86.0	
AGO	27	1.07	[0.86–1.29]	9.85***	247.9***	89.5	
SAD	28	0.95	[0.82–1.07]	14.41***	157.9***	82.9	
GAD	18	1.26	[1.03–1.50]	10.62***	92.1***	81.5	
Primary measure follow-up							
All disorders	59	1.39	[1.25–1.53]	19.92***	405.0***	85.7	1.39
PD	10	1.41	[1.03–1.79]	7.24***	81.6***	89.0	
AGO	18	1.50	[1.21–1.80]	9.90***	152.4***	88.8	
SAD	16	1.29	[1.06–1.51]	11.06***	112.9***	86.7	
GAD	15	1.41	[1.19–1.63]	12.48***	39.6***	64.7	
Secondary measure post							
All disorders	59	0.80	[0.72–0.87]	20.52***	248.2***	76.6	8.57*
PD	9	0.89	[0.74–1.04]	11.48***	17.1*	53.3	
AGO	20	0.86	[0.73–0.98]	12.94***	54.7***	65.3	
SAD	20	0.65	[0.52–0.78]	9.78***	109.4***	82.6	
GAD	10	0.93	[0.73–1.13]	9.02***	34.8***	74.2	
Secondary measure follow-up							
All disorders	38	0.80	[0.68–0.91]	13.60***	185.0***	80.0	9.05*
PD	7	0.80	[0.48–1.12]	4.83***	46.1***	87.0	
AGO	14	0.81	[0.66–0.96]	10.76***	30.6**	57.6	
SAD	9	0.60	[0.39–0.81]	5.56***	47.8***	83.3	
GAD	8	1.07	[0.85–1.30]	9.30***	17.3*	59.6	

Note. *k* = number of treatment conditions. Qb = Q between subgroups.
[a] Comparison between the disorders.
* $p < .05$. ** $p < .01$, *** $p < .0001$.

levels after going through CBT for their anxiety disorders. The same moderation effect was found by, for example, Cuijpers et al. (2014) in depression, Öst et al. (2015, 2016) in OCD, Wergeland et al. (2021) for internalizing, and Riise et al. (2021) for externalizing disorders in youth. Proportion of women in the sample was also a significant positive moderator. This corroborates the findings in Öst (2014) on ACT, Öst et al. (2015) on OCD, and Öst and Ollendick (2017) in anxiety disorders in children. However, there are probably more meta-analyses that did not find gender to be a significant moderator, and investigating for which disorders × treatment interactions this might be the case should be pursued in future research.

Table 4

Subgroup Analysis of the Effect Size for All Studies at Posttreatment

Variable	*k*	*g*-Value	95% CI	Qb[a]
Type of study				0.02
RCT	31	1.11	[0.90–1.32]	
Pre–post	55	1.09	[0.98–1.20]	
Statistical analysis				0.53
Intent-to-treat	42	1.05	[0.90–1.20]	
Treatment completers	44	1.12	[1.00–1.25]	
Risk of bias				13.25**
Low	8	1.82	[1.32–2.31]	
Moderate	52	1.11	[0.99–1.22]	
High	26	0.88	[0.69–1.07]	
Format				
Individual	47	1.14	[1.00–1.28]	1.12
Group	39	1.03	[0.89–1.17]	
Continent				12.33*
Europe	54	1.02	[0.90–1.14]	
Australia	13	1.03	[0.80–1.27]	
North America	9	1.39	[1.00–1.78]	
Asia	7	1.26	[0.76–1.76]	
South America	3	1.51	[1.22–1.80]	

Note. *k* = number of treatment conditions, Qb = *Q* between subgroups.
[a] Comparison between the disorders.
* $p < .05$. ** $p < .001$.

Regarding the secondary measure, symptoms of depression, we found the following ESs for GAD 0.93, PD 0.89, and SAD 0.65. These corroborate the within-group ESs reported by Cuijpers et al. (2016); GAD 0.87, PD 0.91, and SAD 0.73. Thus, it seems that treatments focused on the participants' anxiety disorders also lead to large ESs in one of the most common comorbid disorder, which is encouraging.

A couple of other issues are worth mentioning in this context. The mean proportion of patients declining to participate in the treatment they were offered was 10.1% on average, and the mean attrition rate was 15.9%. The declining rate is lower than 15.0%, and the attrition rate is equal to the 15.7% reported by Öst et al. (2015) and the 15.7% reported by Hans and Hiller (2013). The dropout rate in the present meta-analysis also compares favorably with the 19.7% reported by Swift and Greenberg (2012) across 669 psychotherapy studies published in 1990–2010. They found a somewhat lower rate for CBT, 18.4% across 439 studies.

The third aim was to examine how CBT delivered in routine clinical care do in comparison with efficacy studies for the same disorders. As an initial step, we compared effectiveness and efficacy studies on seven background and treatment variables for the

Table 5
*Some Background and Treatment Data (*M *and* SD*) for Effectiveness and Efficacy Studies in the Different Disorders*

Disorder	*k*	Age (years)	Females (%)	Severity (%)	Comorbidity (%)	Medicated (%)	Tx time	Attrition (%)
PD		$p = .04$	$p = .72$	$p = .45$	$p = .35$	$p = .14$	$p = .48$	$p = .96$
Effectiveness	13	39.0 (4.9)	64.2 (10.8)	54.7 (14.1)	45.5 (23.1)	48.5 (24.8)	12.1 (6.9)	12.2 (12.7)
Efficacy	28	35.8 (2.3)	63.1 (13.1)	58.0 (11.8)	53.9 (22.2)	33.0 (27.1)	13.8 (4.7)	12.4 (9.9)
AGO		$p = .56$	$p = .11$	$p = .18$	$p = .69$	$p = .001$*	$p = .27$	$p = .92$
Effectiveness	27	37.7 (9.4)	69.7 (12.3)	59.0 (12.4)	55.1 (23.9)	55.0 (23.9)	16.3 (9.9)	13.1 (9.5)
Efficacy	63	36.7 (2.8)	73.9 (10.5)	54.5 (15.2)	53.3 (21.8)	33.3 (25.7)	13.4 (11.9)	13.4 (11.9)
SAD		$p = .12$	$p = .01$	$p = .98$	$p = .62$	$p = .0001$*	$p = .24$	$p = .98$
Effectiveness	28	33.6 (4.6)	46.8 (10.5)	52.3 (9.7)	50.6 (26.4)	41.5 (21.1)	23.1 (12.5)	14.8 (11.7)
Efficacy	83	35.2 (4.6)	53.0 (10.9)	52.4 (11.1)	53.8 (18.4)	18.9 (19.5)	19.2 (15.1)	14.7 (10.9)
GAD		$p = .004$	$p = .79$	$p = .022$	$p = .36$	$p = .35$	$p = 1.0$	$p = .62$
Effectiveness	18	35.8 (5.1)	69.8 (14.3)	71.6 (8.5)	66.1 (18.1)	40.5 (22.7)	12.1 (4.8)	16.0 (8.5)
Efficacy	40	43.3 (10.1)	68.8 (13.0)	64.2 (15.4)	61.1 (14.8)	34.2 (20.8)	12.1 (6.5)	14.7 (10.0)

Note. k = number of treatment conditions, Severity = percentage of the maximum score on the primary outcome measure. Comorbidity (%) = proportion having any psychiatric comorbid disorder at inclusion, Medicated (%) = proportion on any psychotropic medication for anxiety disorders at inclusion, Tx time = number of 60 min therapy hours, Attrition (%) = proportion dropping out of those participating in at least one therapy session.
* Significant using the Holm–Bonferroni correction.

respective anxiety disorders. The only variable showing a significant difference was percent medicated for their anxiety disorder at inclusion in the study. For both, AGO and SAD effectiveness studies had higher proportions than efficacy studies. A partial explanation to this is that more efficacy studies compared CBT with some psychotropic drug, which requires CBT patients to be drug-free. However, the meta-regression analysis of the effectiveness studies showed that percent medicated was not a significant moderator. Also, it is important to remember that the medicated participants in the included studies fulfilled diagnostic criteria and had high severity scores despite being medicated. None of the other six variables showed significant differences between effectiveness and efficacy studies.

When comparing the two types of studies on the primary anxiety measures, the overall mean ES (Table 6) was very similar for effectiveness and efficacy studies at posttreatment, and nonsignificantly higher for effectiveness studies at follow-up assessment. There were no significant differences between the types of studies at the disorder level. Regarding mean remission rate (Table 7) effectiveness studies had nonsignificantly higher rates both at posttreatment and follow-up assessment, with no differences within disorders. As these two analyses may have been affected by the pre–post trials

Table 6
Effect Sizes (Hedges' g*) for Effectiveness and Efficacy Studies Within the Different Disorders at Post and Follow-Up Assessment*

Disorder	Study type	*k*	*g*-Value	95% CI	*z*-Value	Qb[a]
Posttreatment						
All disorders	Effectiveness	86	1.09	[0.99–1.19]	21.69*	0.13
	Efficacy	210	1.07	[1.00–1.13]	32.36*	
PD	Effectiveness	13	1.31	[1.03–1.59]	9.23*	0.33
	Efficacy	24	1.42	[1.15–1.69]	10.49*	
AGO	Effectiveness	27	1.07	[0.86–1.29]	9.85*	1.08
	Efficacy	63	0.95	[0.84–1.05]	17.40*	
SAD	Effectiveness	28	0.95	[0.82–1.07]	14.41*	1.03
	Efficacy	83	1.03	[0.94–1.12]	22.64*	
GAD	Effectiveness	18	1.26	[1.03–1.50]	10.62*	0.15
	Efficacy	40	1.20	[1.02–1.39]	12.60*	
Follow-up						
All disorders	Effectiveness	59	1.39	[1.25–1.53]	19.92*	1.19
	Efficacy	140	1.30	[1.21–1.39]	29.18*	
PD	Effectiveness	10	1.41	[1.03–1.79]	7.24*	0.80
	Efficacy	16	1.64	[1.30–1.98]	9.43*	
AGO	Effectiveness	18	1.50	[1.21–1.80]	9.90*	4.13
	Efficacy	39	1.16	[1.02–1.30]	16.23*	
SAD	Effectiveness	16	1.29	[1.06–1.51]	11.06*	0.36
	Efficacy	52	1.21	[1.08–1.33]	18.74*	
GAD	Effectiveness	15	1.41	[1.19–1.63]	12.48*	0.65
	Efficacy	33	1.54	[1.31–1.77]	13.02*	

Note. k = number of treatment conditions. Qb = Q between subgroups.
[a] Comparison Effectiveness versus Efficacy studies within the respective disorders.
* $p < .0001$.

Table 7
Remission Rates for Effectiveness and Efficacy Studies for the Different Disorders at Post and Follow-Up Assessment

Disorder	Study type	*k*	Percent	95% CI	*z*-Value[a]	Qb[b]
Posttreatment						
All disorders	Effectiveness	55	52.3	[47.5–57.1]	0.95	1.10
	Efficacy	132	49.1	[45.6–52.7]	−0.47	
PD	Effectiveness	10	62.0	[53.6–69.7]	2.79**	0.37
	Efficacy	26	58.7	[51.7–65.4]	2.42*	
AGO	Effectiveness	16	57.6	[50.0–64.9]	1.97*	1.09
	Efficacy	31	51.8	[43.7–59.8]	0.42	
SAD	Effectiveness	16	45.1	[38.5–51.8]	−1.43	1.78
	Efficacy	39	39.5	[34.9–44.3]	−4.24†	
GAD	Effectiveness	13	47.0	[34.4–60.0]	−0.45	0.38
	Efficacy	36	51.7	[44.5–58.9]	0.46	
Follow-up						
All disorders	Effectiveness	43	58.7	[54.1–63.1]	3.68†	0.79
	Efficacy	91	55.9	[51.8–59.9]	2.80**	
PD	Effectiveness	7	66.3	[57.1–74.4]	3.38***	0.02
	Efficacy	21	65.6	[59.2–71.5]	4.65†	
AGO	Effectiveness	14	63.8	[58.1–69.2]	4.58†	2.09
	Efficacy	24	57.0	[49.5–64.2]	1.82	
SAD	Effectiveness	12	51.6	[42.5–60.5]	0.34	2.07
	Efficacy	20	43.2	[36.7–50.1]	−1.94	
GAD	Effectiveness	10	53.7	[46.4–62.0]	1.00	0.33
	Efficacy	26	57.0	[48.8–64.8]	1.67	

Note. k = number of treatment conditions. Qb = Q between subgroups.
[a] Test if significantly different from 50%. [b]Comparison Effectiveness versus Efficacy within the respective disorders.
* $p < .05$. ** $p < .01$. *** $p < .001$. † $p < .0001$.

Table 8
Effect Size and Remission Rate for Randomized Controlled Studies Only: Anxiety Disorders Combined

Study type	*k*	*g* (%)	95% CI	*z*-Value	Qb[a]
g-Value at posttreatment					
Effectiveness	32	1.16	[0.95–1.38]	10.36**	0.60
Efficacy	210	1.07	[1.00–1.13]	32.36**	
g-Value at follow-up					
Effectiveness	22	1.52	[1.22–1.81]	10.11**	1.56
Efficacy	140	1.30	[1.21–1.39]	29.18**	
Remission rate at posttreatment					
Effectiveness	21	53.4	[47.1–59.6]	1.06	1.35
Efficacy	132	49.1	[45.6–52.7]	−0.47	
Remission rate at follow-up					
Effectiveness	18	59.3	[53.3–65.0]	3.03*	0.87
Efficacy	91	55.9	[51.8–59.9]	2.80**	

Note. *k* = number of treatment conditions. Qb = Q between subgroups.
[a] Comparison Effectiveness versus Efficacy.
* $p < .01$. ** $p < .0001$.

in effectiveness studies, analyses of only RCTs were done (Table 8). These also showed that effectiveness studies had somewhat, but not significantly, higher ES and remission rate than efficacy studies, both at posttreatment and follow-up assessment. Thus, we can conclude that CBT in routine clinical care yields at least as good effects as does CBT in university settings. These encouraging findings should fuel further transportability and implementation of CBT to routine clinical care. The primary example of this is the Improving Access to Psychological Therapies (IAPT) program within the National Health Service in England (Clark, 2018). A recent meta-analysis (Wakefield et al., 2021) of 47 IAPT studies and 598,266 patients found a within-group ES of 0.96 for the anxiety measure (GAD-7), which is similar to the 1.09 we found.

Our meta-analysis has several strong methodological elements. The large number of studies/treatment conditions (197/301) meant that a power analysis indicated a very high power (99.9%) to detect a small ES of 0.20. Screening of abstracts, reading of full-text articles, and extractions of information from the included studies were done in pairs where disparities were solved in consensus discussions. Ratings of methodological quality and RoB were done by one of the authors and independently by another.

There are also limitations to consider. We only included peer-reviewed published or in-press studies in English language journals. Studies published in other languages could have provided additional information about the effectiveness of CBT for anxiety disorders in adults. However, Hans and Hiller (2013) did not use a language restriction and included studies in English, German, Dutch, French, Spanish, Italian, and Norwegian, and got basically the same results as we did. Furthermore, the inclusion of only published studies could be viewed as a limitation. However, our pool of studies spanned four decades (1989–2021). Including unpublished studies could have introduced bias as it would have been easier to identify unpublished studies from more recent compared to earlier decades. There is a large number of the included studies that have a high RoB, which needs to be taken into consideration when evaluating the results. However, the impact of these is mitigated by the moderator analysis showing that high RoB studies yielded significantly lower ES than studies with low RoB. Furthermore, we cannot rule out that there may be differences between the effectiveness and efficacy studies in other background variables that may moderate treatment outcome, as we used the criterion that at least 70% of the effectiveness studies in our meta-analysis had to provide information on a variable to be included in the moderator analyses. The use of pre–post standardized mean difference to indicate treatment effects in meta-analyses has been problematized, as it can contribute to biased outcomes and does not provide reliable information about the effects of the intervention. However, for evaluation of improvement found in routine clinical care compared with improvement found in efficacy studies, these analyses are still considered informative (Cuijpers et al., 2017).

Future research regarding the effectiveness of CBT in routine clinical care should focus on posttraumatic stress disorder, depressive disorders, bipolar disorders, schizophrenia spectrum disorders, eating disorders, insomnia disorder, addictive disorders, and personality disorders.

In conclusion, our findings demonstrate that when therapists with training in CBT, working in routine clinical care settings, apply cognitive-behavioral interventions with strong or modest research support the within-group ESs and remission rates are at least the same as the effects obtained in university settings, and the effects are maintained or significantly better at follow-up. As the treatment effects are not lost when these evidence-based treatment programs are transported from research clinics to routine clinical care, there is a need to further implement these interventions in routine clinical care for adults with anxiety disorders.

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